```
GenCore version 5.1.3 Copyright (c) 1993 - 2002 Compugen Ltd.
```

OM protein - protein search, using sw model

Run on: December 30, 2002, 16:15:02; Search time 12 Seconds (without alignments) 224.663 Million cell updates/sec

Title: Perfect score: Sequence: US-09-664-326-23
368
1 LTYTDCTESGQNLCLCEGSN.....PKPQSHNDGDFEEIPEEYLQ 65

Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database : SwissProt\_40:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

31 32 33	29 30	27 27	25	23	321	20 20	18	17	16	14	13	12	11	10	0 00	7	6	տ	4	ω	2	1	NO.	Result	
63.5 5.5		5 64 64		000		67	68.5	90	173	249	293	315	333	343	3 4 5	346	348	348	350	352	353	360	score	I	
17.3 17.3 17.3	17.3 17.3	17.7	17.8	17.9	ı œ	18.2	18.6		47.0		9.	5	0	93.2	ω.	4.	٠		<u>ب</u>	95.7	95.9	97.8	Match I		d
1218 2321 2703	474 755	306 317	2700	2282	810	222	1071	17	62 5	5 63	65	66	72	5 O	3 55	65	65	65	65	65	65	65	Length I		
<u> </u>		<u>ц</u> ч		سر دسر د -		<b>⊢</b> ⊢	. —	μ-			_	Η	<b>-</b>	<u> </u>	• р	ר	1		_	•	_	μ.	DB		
JAG1_HUMAN NTC3_HUMAN NOTC_DROME	VSM5_TRYBB COMP_RAT	C181_HUMAN IBP2_SHEEP	ZAN_HUMAN	ZAN_RABIT	NEL1_HUMAN	Y4DA_KHISN OS28_PLAGA	VATA_YEAST	ITHB_HIRME	ITHO_HIRMA	ITHV_HIRMA	ITHA_HIRME	ITH2_HIRME	ITH3_HIRME	TTHE HIRMS	ITHG_HIRME	ITHH_HIRME	ITHI_HIRME	ITHD_HIRME	ITHC HIRME	ITHK_HIRME	ITHE HIRME	ITH1_HIRME	ID		
	P26333 trypanosoma P35444 rattus norv		Q9y493 homo sapien	p57999 oryctolagus		Q05439 plasmodium	· G		P28512 nirudinaria P26631 hirudinaria	hirudi	l hirudo	hirudo	hirudo	P28505 hirudo medi.	hirudo	hirudo		hirudo	hirudo		hirudo	50 hirudo me	Description		

45	44	43	42	41	40	39	38	37	36	ဌဌ	34
62	62	62	62	62	62	62	62	62	62.5	63	63
16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	17.0	17.1	17.1
2471	2471	2470	264	80	80	80	79	. 79	513	385	80
Ъ	Ь	Н	_	<u>س</u>	س	_	1	_	1	-	_
NTC2_RAT	NTC2_HUMAN	NTC2_MOUSE	SPRC_CAEEL	AFP4_ARATH	AFP3_ARATH	AFP2_ARATH	AFP3_RAPSA	AFP3_BRANA	AVR2_HUMAN	GUNF_FUSOX	AFP4_RAPSA
Q9qw30											
rattus norv	homo sapier	mus musculu	caenorhabdi	arabidopsis	arabidopsis	arabidopsis	raphanus se	brassica na	homo sapien	fusarium ox	raphanus sa

## ALIGNMENTS

Local

Similarity

93.8%;

0;

```
RESULT 2
ITHF_HIRME
                  B
                                                                                                                                                                                                                                                                                                                                               ρ
                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 63
Query Match
                                                                                                                                                                                                                                                  TTHF_HIRME STAN
P28506;
01-DEC-1992 (Rel. :
01-DEC-1992 (Rel. :
01-DEC-1992 (Rel. :
                         Serine protease 1
DISULFID 6
DISULFID 16
DISULFID 22
MOD_RES 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pharmaceutical;
DISULFID 6
DISULFID 16
DISULFID 22
                                                                                                                                              Scharf M., Engels J., Tripier D.;

**Primary structures of new 'iso-hirudins'.";

**FEBS Lett. 255:105-110(1989).

-i- FUNCTION: HIBDDIN TO.
                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAND
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAND
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOD_RES
                                                                                                                                                                                                                 Hirudo medicinalis (Medicinal leech).
Eukaryota; Metazoa; Annelida; Clitellata; Hiru
Arynchobdellida; Hirudiniformes; Hirudinidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS; PRO0777; HIRUDIN.

ProDom; PD004216; Hirudin; 1.

Serine protease inhibitor; Sulfation; Multigene family; Pharmaceutical; 3D-structure.
                                                                                    Pfam; PF00713; Hirudin;
                                                                                                             PIR; S05674; S05674.
                                                                                                                                                                                                         Arynchobdellida;
NCBI_TaxID=6421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR000429; Hirudin.
Pfam; PF00713; Hirudin; 1.
                                                                    ProDom;
                                                                            PRINTS;
                                                                                            InterPro; IPR000429; Hirudin.
                                                                                                                                                                                                                                            Hirudin IIB.
                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                 -
                                                                                                                                                                                                                                                                                                                                                                                  _
                                                                                                                    FUNCTION: HIRUDIN IS A POTENT THROMBIN-SPECIFIC PROTEASE INHIBITOR. IT FORMS A STABLE NON-COVALENT COMPLEX WITH ALPHA-THROMBIN, THEREBY ABOLISHING ITS ABILITY TO CLEAVE FIBRINGEN. SIMILARITY: BELONGS TO THE HIRUDIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1HAG;
1HAH;
                                                                                                                                                                                                                                                                                                                                                                PIXEE
                                                                                                                                                                                                                                                                                                                                                EEYLO
                                                                                                     P09945;
                                                                                                                                                                                                                                                                                                                                                                                                   l Similarity
63; Conser
                                                                   PR00777; HIRUDIN. PD004216; Hirudin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-DEC-94.
20-DEC-94.
                                                                                                                                                                                                                                                                                                                                65
                                                                                                                                                                                                                                                                                                                                                 65
                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                              163
53
111
111
111
111
118
118
118
118
                                                                                                                                                                                                                                                                                      STANDARD;
                                                           inhibitor;
                                                                    Hirudin;
                                                                                                                                                                                                                                                     24,
24,
                  6985
                                                                                                                                                                                                                                                                                                                                                                                                                                     6970
                                                                                                                                                                                                                                                                                                                                                                                                         97.8%;
96.9%;
                                                                                                                                                                                                                                                                     Created)
                                                                                                                                                                                                                                                    Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                     MW;
. 98;
                  ₹
               BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
SULFATION (BY SIMI
                                                                                                                                                                                                                                                                                                                                                                                                : Score 360; DB
: Pred. No. 2e-3
1; Mismatches
Score
                                                                                                                                                                                                                                                                                                                                                                                                                                     9085A5876E3DE9FF CRC64;
353;
                                                                                                                                                                                                                                                            update)
                                                         Multigene
                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                      65
                                                                                                                                                                                                                                                                                                                                                                                                          2e-32;
멂
                                                                                                                                                                                                                                                                                                                                                                                                                    DB
                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                  Hirudinida; Hirudinea;
dae; Hirudo.
                         SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                    ;
<u>ب</u>
                  CRC64;
                                                           family
                                                                                                                                                                                                                                                                                                                                                                                                                  Length
Length
                                                                                                                                                                                                                                                                                                                                                                                                   Indels
65
                                                                                                                                                                                                                                                                                                                                                                                                                    65
                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                   0;
```

```
ITHK_HIRME
ITHK_HIRME
ICH ITHK_H
AC P28511
DT 01-DEC
TO 
                                                                                                                                                                                                                                      RESULT
ITHC_H
RR OCC OCC DIT DAC
                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            γ
                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Serine protease inhibitor; S
DISULFID 6 14
DISULFID 16 28
DISULFID 22 39
MOD_RES 63 63
                                                                                                                                L_HIRME
ITHC_HIRME
P28503;
01-DEC-1992
01-DEC-1992
01-DEC-1992
                Eukaryota; Metazo
Arynchobdellida;
NCBI_TaxID=6421;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ITHK_HIRME 
P28511;
                                                   Hirudo medicinalis (Medicinal leech).
Eukaryota; Metazoa; Annelida; Clitellata;
Arynchobdellida; Hirudiniformes; Hirudinic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -i- SIMILARITY: BELONGS TO THI
HSSP; 011050; 1HIC.
InterPro: IPR000429; Hirudin.
Pfam; PF00713; Hirudin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa;
Arynchobdellida; Hii
NCBI_TaxID=6421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hirudo medicinalis (Medicinal leech).
Eukaryota; Metazoa; Annelida; Clitellata; Hirudinida; Hirudinea;
Arynchobdellida; Hirudiniformes; Hirudinidae; Hirudo.
SEQUENCE
                                                                                                                 Hirudin IIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS; PR00777; HIRUDIN. ProDom; PD004216; Hirudin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-90005945;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hirudin IIIB'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scharf M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scharf M., Engels J., Tripier D.; "Primary structures of new 'iso-hirudins'."; FEBS_Lett. 255:105-110(1989).
                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                               L
                                                                                                                                                                                                                                                                                                                                                                                                                                      _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S Lett. 255:105-110(1989).

FUNCTION: HIRODIN IS A POTENT THROMBIN-SPECIFIC PROTEASE FUNCTION: IT FORMS A STABLE NON-COVALENT COMPLEX WITH ALPHA-THROMBIN. THERBY ABOLISHING ITS ABILITY TO CLEAVE FIBRINGEN.
                                                                                                                                                                                                                                                                                                                                                                                               VVYTDCTESGQNLCLCQGSNVCGQGNKCILGSNGEKNQCVTGEGTPKPQSHNDGDFEEIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                      LTYTDCTESGQNLCLCEGSNVCGQGNKCILGSDGEKNQCVTGEGTFKPQSHNDGDFEEIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EEYLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EEYLO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EEYLQ
                                                                                                                                                                                                                                                                                                                    EEYLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                    65
                                                                                                                                                                                                                                                                                                                                                       65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65
                                                                                                                                    (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA;
                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PubMed=2792365;
J., Tripier D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6968 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95.7%;
93.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
                                                                                                                                    Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
SULFATION (BY SIMI
                                                                                                                                    sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 352; DB Pred. No. 1.4e 3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ښ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 1.1
4; Mismatches
                                                                                                                                                                                                                     PRT;
                                                       Hirudinidae;
                                                                                                                                  update)
on update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                   65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.1e-31;
ches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
.4e-31;
                                                                                                                                                                                                                   A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3
                                                       Hirudinida; Hirudinea; dae; Hirudo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIMILARITY).
9FF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ļ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```

```
RESULT 5
                                                                      SO TITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                    Query
Best I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Best 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                        Matches
                                                                               PRINTS; PRO0777; HIRUDIN.
PRODOM; PD004216; Hirudin; 1
Serine protease inhibitor; S
DISULFID 6 14
DISULFID 16 28
DISULFID 2 39
MOD_RES 63 63
                                                                                                                                                                                                                                                                                                                                                                           01-DEC-1992
01-DEC-1992
01-DEC-1992
                                                                     DISULFID
MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DISULFID
MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Serine protease inhibitor; Sulfation; Multigene DISULFID 6 14 BY SIMILARITY. DISULFID 16 28 BY SIMILARITY. DISULFID 22 39 BY SIMILARITY. BY SIMILARITY. BY SIMILARITY. BY SIMILARITY. BY SIMILARITY. BY SIMILARITY. BY SULFATION (BY SIMILARITY).
                                                                                                                                                                                                                                             MEDLINE=90005945; PubMed=2792365;
Scharf M., Engels J., Tripler D.;
Primary structures of new 'iso-hirudins'.";
FEBS Lett. 255:105-110(1989).
                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa;
Arynchobdellida; Hi
NCBI_TaxID=6421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS; PR00777; HIRUDIN. ProDom; PD004216; Hirudin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -i- FUNCTION: HIRUDIN IS A POTENT THROMBIN-SPECIFIC PROTEASE INHIBITOR. IT FORMS A STABLE NON-COVALENT COMPLEX WITH ALPHA-THROMBIN, THEREBY ABOLISHING ITS ABILITY TO CLEAVE FIBRINGGEN.

-I- SIMILARITY: BELONGS TO THE HIRUDIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=90005945; PubMed=2792365; Scharf M., Engels J., Tripler D.;
                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                     Hirudo medicinalis (Medicinal leech).
                                                                                                                                                                                                                                                                                                                                                                 Hirudin II.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR000429; Hirudin. Pfam; PF00713; Hirudin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Primary structures of new 'iso-hirudins'."; FEBS Lett. 255:105-110(1989).
                                                                                                                                                                                        HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                 P28504;
                                                                                                                                                                                                                                                                                                                                                                                                                            ITHD_HIRME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP;
                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51
                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Match
                                               Match
                                                                                                                                                                                                  FUNCTION: HIRUDIN IS A POTENT THROMBIN-SPECIFIC PROTEASE INHIBITOR. IT FORMS A STABLE NON-COVALIENT COMPLEX WITH ALPHA-THROMBIN, THEREBY ABOLISHING ITS ABILITY TO CLEAVE FIBRINGEN SIMILARITY: BELONGS TO THE HIRUDIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EEYLQ 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S05673; S05673.
; P09945; 4HTC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLATO
LTYTDCTESGQNLCLCEGSNVCGQGNKCILGSDGEKNQCVTGEGTPKPQSHNDGDFEEIP
                                                                                                                                                              Pro; IPR000429; Hirudin.
PF00713; Hirudin; 1.
                                                                                                                                                                                       P09945; 4HTC
                         ;09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65
                                                                                                                                                                                                                                                                                                                                                                            (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                        Conservative
                                                                     A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Α,
                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                              pa; Annelida; Clitellata; Hir
Hirudiniformes; Hirudinidae;
                                                                                                                                                                                                                                                                                                                                                                            24,
24,
24,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6987 MW;
                                                                     6986 MW;
                                  94.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95.1%;
93.8%;
                                                                                                                                                                                                                                                                                                                                                                            Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                            annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
SULFATION (BY SIMILARITY).
817E1E541CF53C73 CRC64;
                                                                                                                              Sulfation;
                                                                                                                                                                                                                                                                                                                                                                                       sequence
                       Score 348; DB Pred. No. 3.8e 5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 350; DB Pred. No. 2.3e 2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                   BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
SULFATION (BY SIMILARITY).
757EEAE55EAEB27E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                       update)
                                                                                                                            Multigene family.
                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                          65
                                DB 1;
.8e-31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1;
.3e-31;
                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                               Hirudinida; Hirudinea; dae; Hirudo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      family.
                                             Length 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                       Indels
                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```

```
RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   日
    RRRR ROCCOSET DITC
                                                                                                                                                                                             뮹
                                                                                                                                                    ITHH_HIRME
                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                        Serine protease inhibitor; S
DISULFID 6 14
DISULFID 16 28
DISULFID 22 39
MOD_RES 63 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-DEC-1992
01-DEC-1992
01-DEC-1992
                                                                                        01-DEC-1992 (R
01-DEC-1992 (R
01-DEC-1992 (R
Hirudin IIIA'.
                                                                                                                                                                                                                                                                                                                DISULFID
DISULFID
DISULFID
MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hirudo medicinalis (Medicinal leech).
Eukaryota; Metazoa; Annelida; Clitellata; Hirudinida; Hirudinea;
Arynchobdellida; Hirudiniformes; Hirudinidae; Hirudo.
                                                 Hirudo medicinalis (Medicinal leech).
Eukaryota; Metazoa; Annelida; Clitellata; Hiru
Arynchobdellida; Hirudiniformes; Hirudinidae;
NCBI_TaxID-6421;
MEDLINE=90005945; PubMed=2792365;
Scharf M., Engels J., Tripler D.;
"Primary structures of new 'iso-hirudins'.";
                                                                                                                                ITHH_HIRME P28508;
                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00713; Hirudin; 1 PRINTS; PR00777; HIRUDIN.
                                                                                                                                                                                                                                                                                                                                                                                                                            -1- SIMILARITY: BELONGS
PIR; S05676; S05676.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scharf M., Engels J., Tripier D.;
"Primary structures of new 'iso-hirudins'
FEBS Lett. 255:105-110(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arynchobdellida;
NCBI_TaxID=6421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hirudin III.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P28509;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=90005945;
Scharf M., Engels
                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                             ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR000429; Hirudin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ITHI_HIRME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                             61
                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ш
                                                                                                                                                                                                                                   ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNCTION: HIRUDIN IS A POTENT THROMBIN-SPECIFIC PROTEASE INHIBITOR. IT FORMS A STABLE NON-COVALENT COMPLEX WITH ALPHATHROMBIN, THEREBY ABOLISHING ITS ABILITY TO CLEAVE FIBRINGGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EEYLQ 65
                                                                                                                                                                                                        EEYLQ 65
                                                                                                                                                                                                                                LTYTDCTESGQNLCLCEGSNVCGQGNKCILGSDGEKNQCVTGEGTPKPQSHNDGDFEEIP
                                                                                                                                                                                            EEYLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PLATE
                                                                                                                                                                                                                                                                                                                                                                                                                  P01050;
                                                                                                                                                                                                                                                                         61; Conser
                                                                                                                                                                                                                                                                                                                                                                             PD004216; Hirudin;
                                                                                                                                                                                             65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65
                                                                                                  Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                 AA;
                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                  . 24, Created)
. 24, Last sequ
. 24, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24,
24,
24,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PubMed=2792365;
J., Tripier D.;
                                                                                                                                                                                                                                                                                                                 7027
                                                                                                                                                                                                                                                                                  94.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
                                                                                                                                                                                                                                                                                                                 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                      TO THE HIRUDIN FAMILY.
                                                                                                  sequence update; annotation updat
                                                                                                                                                                                                                                                                                                                                                                  Sulfation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence
                                                                                                                                                                                                                                                                       Score 348; DB 1;
Pred. No. 3.8e-31;
2; Mismatches 2;
                                                                                                                                                                                                                                                                                                               BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
SULFATION (BY SIMILARITY).
05E6F1F76E3DE9FC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                                                Multigene family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65
                                                                                                   update)
                                                                                                                                          65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                          B
                                                            Hirudinida;
dae; Hirudo.
                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                        Indels
                                                                      Hirudinea;
                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                        0
```

8

61

EEYLQ

65

```
망
                                       Ş
                                                                                                                                                                         SOFFIT WARRANGE COCCEPT AND CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SO FITTER DE DE COCCERT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 8
ITHG_HIRME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 59
                                                                                   Query Match
Best Local S
Matches 60
                                                                                                                                                                                         Serine protease
DISULFID 6
DISULFID 16
DISULFID 22
MOD_RES 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
DISULFID
MOD_RES
SEQUENCE
                                                                                                                                                                       MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                                                                                                        pfam; PF00713; Hirudin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-DEC-1992 (Rel.
01-DEC-1992 (Rel.
01-DEC-1992 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Serine protease inhibitor; Sulfation; DISULFID 6 14 BY SIMILE DISULFID 16 28 BY SIMILE DISULFID 22 39 BY SIMILE MOD_RES 63 63 SULFATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam; PF00713; Hirudin; 1.
PRINTS; PR00777; HIRUDIN.
ProDom; PD004216; Hirudin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Primary structures of new 'i FEBS Lett. 255:105-110(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hirudo medicinalis (Medicinal leech).
Eukaryota; Metazoa; Annelida; Clitellata; Hiru
Arynchobdellida; Hirudiniformes; Hirudinidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEBS
                                                                                                                                                                                                                                                                                                                                                                                      PIR; S05675; S05675.
HSSP; P01050; 1HIC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=90005945;
Scharf M., Engels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hirudin IIIA.
                                                                                                                                                                                                                                                                                                     ProDom;
                                                                                                                                                                                                                                                                                                                           PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=6421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P28507;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     THG_HIRME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
    سر
                                         \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S Lett. 255:105-110(1989).
FUNCTION: HIRODIN FOOTENT THROMBIN-SPECIFIC PROTEASE
INHIBITOR. IT FORMS A STABLE NON-COVALENT COMPLEX WITH ALPHA-
THROMBIN, THEREBY ABOLISHING ITS ABILITY TO CLEAVE FIBRINGGEN.
SIMILARITY: BELONGS TO THE HIRODIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                              FUNCTION: HIRUDIN IS A POTENT THROMBIN-SPECIFIC PROTEASE INHIBITOR. IT FORMS A STABLE NON-COVALENT COMPLEX WITH ALPHATHROMBIN. THEREBY ABOLISHING IT'S ABILITY TO CLEAVE FIBRINGEN. SIMILARITY: BELONGS TO THE HIRUDIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LTYTDCTESGQNLCLCEGSNVCGQGNKCILGSDGEKNQCVTGEGTPKPQSHNDGDFEEIP 60
EEYLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EEYLO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VVYTDCTESGEDLCLCEGSNVCGEGNKCILGSDGEKNECVTGEGTPKPQSHNDGDFEEIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P01050;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59;
                                                                                                                                                                                                                                                                             PR00777; HIRUDIN.
PD004216; Hirudin;
protease inhibitor;
                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR000429; Hirudin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65
                                                                                                                                                                       65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                      Conservative
                                                                                                                                                                       <u></u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed=2792365;
J., Tripier D.;
es of new 'iso-hirudins'.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24, Created)
24, Last sequence 24, Last anno
                                                                                                                                                                       7028 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6973 MW;
                                                                                                         93.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94.0%;
                                                                                                                                                                   n; l.

Ti Sulfation; Multigene family.

BY SIMILARITY.

BY SIMILARITY.

BY SIMILARITY.

SULFATION (BY SIMILARITY).

MW; 05F6A0B26A3DE9FC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
SULFATION (BY SIMILARITY).
CA8BEOD72B6449E4 CRC64;
                                                                                   Score 345; DE
Pred. No. 8e-3
3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 346; DB
Pred. No. 6.3e
5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65
                                                                                                         8e-31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1;
.3e-31;
                                                                                                                               BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hirudinida; Hirudinea; dae; Hirudo.
                                                                                                                             1.
                                                                                                                             Length 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 65;
                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                   <u>;</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
```

```
RESULT 9
    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADD DE SERVICIO DE LA COMPANIA DEL COMPANIA 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                       ITHE_HIRME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE.

SEQUENCE.

SEQUENCE.

SCHART M., Engels J., Tripler D.;

"Primary structures of new 'iso-hirudins'.";

"PRIMARY STRUCTURES OF NOTION IS A POTENT THROMBIN-S

"TATTE"

"TTTT"
                                                                                                                                                                                                                                                                                                    P28505;
01-DEC-1992
01-DEC-1992
01-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ITHJ_HIRME
P28510;
01-DEC-1992
                                                                                                                                                                   Eukaryota; Metazoa; Annelida; Clitellata; Arynchobdellida; Hirudiniformes; Hirudinid NCBI_TaxID=6421;
MEDLINE=90005945; PubMed=2792365;
Scharf M., Engels J., Tripler D.;
"Primary structures of new 'iso-hirudins'.";
FEBS Lett. 255:105-110(1989).
-1- FUNCTION: HIRUDIN IS A POTENT THROMBIN-SI
INHIBITOR. IT FORMS A STABLE NON-COVALEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProDom; PD004216; Hirudin; 1.
Serine protease inhibitor; Sulfation;
DISULFID 6 14 BY SIMILA
DISULFID 16 28 BY SIMILA
DISULFID 22 39 BY SIMILA
DISULFID 22 39 BY SIMILA
MOD_RES 63 63 SULFATION
                                                                                           SEQUENCE.
MEDLINE=90005945;
Scharf M., Engels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa;
Arynchobdellida; Hii
NCBI_TaxID=6421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hirudo medicinalis (Medicinal leech).
Eukaryota, Metazoa; Annelida; Clitellata; Hirudinida; Hirudinea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HSSP; P01050; 1HIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hirudin IIIB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR000429; Hirudin.
Pfam; PF00713; Hirudin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                  ITHE_HIRME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 EEYLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 LTYTDCTESGQNLCLCEGSNVCGQGNKCILGSDGEKNQCVTGEGTPKPQSHNDGDFEEIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FUNCTION: HIRUDIN IS A POTENT THROMBIN-SPECIFIC PROTEASE INHIBITOR. IT FORMS A STABLE NON-COVALENT COMPLEX WITH ALPHATHROMBIN, THEREBY ABOLISHING ITS ABILLTY TO CLEAVE FIBRINGGEN SIMILARITY: BELONGS TO THE HIRUDIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S05677; S05677.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EEYLQ
|||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OTABE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VVYTDCTESGQNLCLCQDSNVCGQGNKCILGSNGEKNQCVTGEGTPKPQSHNDGDFEEIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PR00777; HIRUDIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                65
                                                                                                                                                                                                                                                                                                       (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A
A
                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hirudiniformes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7026 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     93.8%;
92.3%;
                                                                                                                                                                                                                                                                                                    Last sequence up
                                                                                                                                                                                                                                                                                                                                                  Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 345; DB Pred. No. 8e-3
3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
SULFATION (BY SIMILARITY).
1E902A81AE3DE9FC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                           Hirudinidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hirudinidae; Hirudo
    NON-COVALENT
  THROMBIN-SPECIFIC PI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No. 8e-31;
                                                                                                                                                                                                                                                                                                       on update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                  65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A
                                                                                                                                                                                                           Hirudinida; Hirudinea;
dae; Hirudo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
    ALPHA-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
RESULT 11
ITH3_HIRME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISULFID MOD_RES SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                   MEDINE-86149219; PubMed=3513162; Harvey R.P., Degryse E., Stefani L., Schamber F., Courtney M., Tolstoshev P., Lecocq J.-p.; "Cloning and expression of a cDNA coding for the hirudin from the bloodsucking leech, Hirudo medic: Proc. Natl. Acad. Sci. U.S.A. 83:1084-1088(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAR-1989 (Rel. 10, Created)
01-MAR-1989 (Rel. 10, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
Hirudin variant-2 precursor (Fragment).
Hirudo medicinalis (Medicinal leech).
Eukaryota; Metazoa; Annelida; Clitellata; Hirudinida; Hirudinea;
Arynchobdellida; Hirudiniformes; Hirudinidae; Hirudo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRINTS; PRO0777; HIRUDIN.

ProDom; PD004216; Hirudin; 1.

Serine protease inhibitor; Sulfation;
DISULFID 6 14 BY SIMILA
DISULFID 16 28 BY SIMILA
DISULFID 22 39 BY SIMILA
DISULFID 23 39 SULFATION
MOD_RES 63 63 SULFATION
   EMBL;
PIR; ;
PDB; ;
PDB; 4
                                                                                                                                                                                    This
                                                                                                                                                                                                                                                                                                                            MEDLINE=90327074; PubMed=2374926;
Rydel T.J., Ravichandran K.G., Tu
Roitsch C., Fenton J.W. II;
                                                                                                                                                                                                                                                                                                                                                                                           Proc.
[2]
                                                                                        use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR000429; Hirudin. Pfam; PF00713; Hirudin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP;
                                                                                                                                                                                                                                                                               Science 249:277-280(1990).
                                                                                                                                                                                                                                                                                                                                                                         X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS) OF MUTANT LYS-54.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P09945;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ITH3_HIRME
                                                                                                                                                                                                                                                                                               thrombin.
                                                                                                                                                                                                                                                                                                             "The structure of a complex of recombinant hirudin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 LTYTDCTESGQNLCLCEGSNVCGQGNKCILGSDGEKNQCVTGEGTPKPQSHNDGDFEEIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \vdash
L; M12693; AAA29195.1;
L; A14988; CAA01205.1;
; A37417; A37417.
; 3HTC; 31-JAN-94.
; 4HTC; 31-JAN-94.
                                                                                                                     European Bioinformatics Institute. There are no rest
by non-profit institutions as long as its content
ified and this statement is not removed. Usage by an
                                                                                                                                                                                                                FUNCTION: HIRUDIN IS A POTENT THROMBIN-SPECIFIC PROTEASE INHIBITOR. IT FORMS A STABLE NON-COVALENT COMPLEX WITH ALPHA-THROMBIN, THEREBY ABOLISHING ITS ABILITY TO CLEAVE FIBRINGEN. SIMILARITY: BELONGS TO THE HIRUDIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              THROMBIN, THEREBY ABOLISHING ITS ABILITY TO CLEAVE FIBRINOGEN SIMILARITY: BELONGS TO THE HIRUDIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EEYLQ 65
                                                                                                                                                                 SWISS-PROT entry is copyright. It is produced through a collaboration en the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ITYTDCTESGQDLCLCEGSDVCGKGNKCILGSNGEENQCVTGEGTPKPQSHNDGDFEEIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P09945; 4HTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6987 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          93.2%;
90.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BY SIMILARITY.
BY SIMILARITY
BY SIMILARITY
SULFATION (BY SIMILARITY)
AEIEEAE55EA69ADC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 343;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 1.306; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                          Tulinsky A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
.3e-30;
                                                                                                                                                                                                                                                                                                                                          Bode W., Huber
                                                                                                                                                                                                                                                                                                                                                                                                                        medicinalis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 65
                                                                                                                                                                                                                                                                                                                                                                                                                                     anticoagulant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cazenave
                                                                                                                                                                                                                                                                                                            and human alpha
                                                                                                                                                  restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   J.-P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
SQ TTTTTWW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SQ PTT
        Š
                          밁
                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                           ITH2_HIRME
                                                               Query Match
Best Local S
Matches 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                            PRINTS; PRO0777; HIRUDIN.
PRODOM; PD004216; Hirudin; 1
Serine protease inhibitor; S
DISULFID 6 14
DISULFID 16 28
DISULFID 22 39
MOD_RES 64 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
DISULFID
DISULFID
DISULFID
MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                01-MAR-1989
01-MAR-1989
01-DEC-1992
Hirudin PA:
                                                                                                                                                                                                                           MEDLINE-87026247; PubMed-3768144;
Dodt J., Machleidt W., Seemueller U., Maschler R., Fritz H.;
Dodt J., Machleidt W., Seemueller U., Maschler R., Fritz H.;

"Isolation and characterization of hirudin isoinhibitors and seque
analysis of hirudin PA.";
Biol. Chem. Hoppe-Seyler 367:803-811(1986).

-i- EUNCTION: HIRUDIN IS A POTENT THROMBIN-SPECIFIC PROTEASE
INHIBITOR. IT FORMS A STABLE NON-COVALENT COMPLEX WITH ALPHA-
THROMBIN, THEREBY ABOLISHING ITS ABILITY TO CLEAVE FIBRINOGEN.
                                                                                                                                                                                                                                                                                                                          Hirudo medicinalis (Medicinal leech).
Eukaryota; Metazoa; Annelida; Clitellata; Hiru
Arynchobdellida; Hirudiniformes; Hirudinidae;
MCBI_TaxID=6421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Serine protease inhibitor; Sulfation; Multigene family; Signal;
                                                                                                                                                                              InterPro; IPR000429; Hi: Pfam; PF00713; Hirudin;
                                                                                                                                                                                                  PIR; A24350; A24350.
HSSP; P09945; 4HTC.
                                                                                                                                                                                                                                                                                                                                                                                                       ITH2_HIRME
P09944;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3D-structure.
                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR000429;
Pfam; PF00713; Hirud:
                                                                                                      SEQUENCE
                                                                                                                                                                                                                      -!- SIMILARITY: BELONGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
        19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      œ
                                             \vdash
                                                                                                                                                                                                                     INHIBITOR. IT FORMS A STABLE NON-CO
THROMBIN, THEREBY ABOLISHING ITS AS
SIMILARITY: BELONGS TO THE HIRUDIN
                         EEYLQ 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EEYLQ
- 띥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           l Similarity
57; Conserv
                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PD004216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65
                                                                                                     66
                                                                                                                                                                                                                                                                                                                                                                          (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41
8
13
23
29
70
                                                                                                    AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ΑA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hirudin;
                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                          10,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hirudin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1
7
72
21
35
46
70
7571
                                                                                                    7026 MW;
                                                                        85.6%;
87.1%;
                                                                                                                                                                                        Hirudin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90.5%;
                                                                                                                                                                                                                                                                                                                                                                         Created)
Last sequence Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MW.
                                                                                                                                                                                                                                                                                                                                                                         sequence update) annotation updat

    Sulfation; Multigene family.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 333; DB - 1.7e-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6;
                                                               Score 315; DE Pred. No. 1.46
4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SULFATION.
C6EF2F28E9C45A5B
                                                                                                    SULFATION. FALB80B7F4FEA317 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HIRUDIN VARIANT-2
                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                66
                                                                                                                                                                                                                      FAMILY.
                                                                       DB 1;
l.4e-27;
                                                                                                                                                                                                                                                                                                                                                                                                                ₿
                                                                                                                                                                                                                                                                                                                                      Hirudinida;
dae; Hirudo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 72;
                                                                                 Length
                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                              Hirudinea;
                                                                                                                                                                                                                                                                             H.;
and sequence
                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                              Gaps
                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67
                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                              0
```

밁

61

臣

62

```
RESULT 13
ITHA_H
ITHA_H
ID ITHA_H
AC P28501
DT 01-DEC
DT 16-OCT
DE Hirudo
OC Eukary
OC ALYNCh
OX NCBL_T
RN [1]
RP SEQUEN
RX MEDLIN
RA SCHARÉ
RT FEBS 1
CC -1- FU
CC -1
                   RESULT 14
ITHV_HIRMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
MEDLINE-94000343; PubMed-burner NEDCTICWALA A., Hartwell R., Scawen NELECTTICWALA A., Hartwell R., Scawen Net Complete amino acid sequence of Hirudinaria manillensis.";

L. J. Protein Chem. 12:365-370(1993).

L. J. Protein Chem. 12:365-370RMS A STABLE NON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Serine protease I
DISULFID 6
DISULFID 16
DISULFID 22
MOD_RES 63
                                                                                                                                                                                                                                                                                                            ITHV_HIRMA
P81492;
15-DEC-1998
15-DEC-1998
15-DEC-1998
Hirudin HV1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ITHA_HIRME P28501; 01-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEBS Lett. 255:105-110(1989).

-i- FUNCTION: HIRUDIN IS A POTENT THROMBIN-SPECIFIC PROTEASE
INHIBITOR. IT FORMS A STABLE NON-COVALENT COMPLEX WITH ALPHA-
THROMBIN, THEREBY ABOLISHING ITS ABILITY TO CLEAVE FIBRINGGEN.
-i- SIMILARITY: BELONGS TO THE HIRUDIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DISULFID
DISULFID
MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                 Hirudin HYI (BULTUGIN).
Hirudinaria manillensis (Buffalo leech).
Eukaryota; Metazoa; Annelida; Clitellata;
Arynchobdellida; Hirudiniformes; Hirudinio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=90005945; PubMed=2792365; Scharf M., Engels J., Tripier D.; "Prinary structures of new 'iso-hirudins'."; "FBBS Lett. 255:105-110(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hirudo medicinalis (Medicinal leech).
Eukaryota; Metazoa; Annelida; Clitellata; Hirudinida; Hirudinea;
Arynchobdellida; Hirudiniformes; Hirudinidae; Hirudo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-DEC-1992 (Rel.
01-DEC-1992 (Rel.
16-OCT-2001 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Interpro; IPRO00429; Hirudin. Pfam; PP00713; Hirudin; 1. PRINTS; PR00777; HIRUDIN. ProDom; PD004216; Hirudin; 1.
                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HSSP; P01050;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=6421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hirudin I (Fragments)
                                                                                                                                                                                                                             NCBI_TaxID=6419;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EEYLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65
                                                                                                                                                                                                                                                                                                                                  (Rel.
                                                                                                                                                                                                                                                                                                                 (Bufrudin)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              se inhibitor; Sulfation; Multigene
6 14 BY SIMILARITY.
16 28 BY SIMILARITY.
22 BY SIMILARITY.
23 BY SIMILARITY.
24 SULFATION.
25 AA; 7126 MW; B79C5A9D11677AD5 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Α,
                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40,
                                                                                                                                                                                                                                                                                                                                37, Created)37, Last sequence up37, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 79.6%;
81.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                            l R., Scawen sequence of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sequence up
annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 293; DB Pred. No. 3.2e 1; Mismatches
             THROMBIN-SPECIFIC PONON-COVALENT COMPLEX
                                                                                                                                                                                                                                                   Hirudinidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   293;
No. 3.
                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                o z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Multigene
                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             65
                                                                                                .D., Atkinson T.; hirudin variant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB
. 2e-
                                                                                                                                                                                                                                                                                                                                                                                                                 A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                     Hirudinida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                     PROTEASE
               WITH
                                                                                                                                                                                                                                                                     Hirudinea;
                                                                                                from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65
               ALPHA.
                                                                                                  the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

\*

Qy

 ${\tt LTYTDCTESGQNLCLCEGSNVCGQGNKCILGSDGEKNQCVTGEGTPKPQSHNDGDFEEIP}$ 

60

```
ALD DESCRIPTION OF THE PROPERTY OF THE PROPERT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TH6_
Query Ma
Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                PIR: A42207; A42207.
HSSP; P01050; 5HIR.
GlycoSuiteDB; P28512; GlycoSuiteDB; P28512; GlycoSuiteDB; P2872; Hirudin.
Pfam; PF00713; Hirudin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRINTS; PR00777; HIRUDIN.
PRODOM; PD004216; Hirudin;
Serine protease inhibitor;
DISULFID 16 28
DISULFID 16 28
DISULFID 22 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-DEC-1992
01-DEC-1992
16-OCT-2001
Hirudin P6.
                                                                                                                 MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLING Y21/2011, MEDLING Y21/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ITH6_HIRMA
P28512;
                                                                                                                                                                                                                                   DISULFID DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Primary structure and function of novel O-glycosylated hirudins; the Leech Hirudinaria manillensis."; Biochemistry 31:224-2298 (1992)
-I- FUNCTION: HIRUDIN IS A POTENT THROMBIN-SPECIFIC PROTEASE INHIBITOR. IT FORMS A STABLE NON-COVALENT COMPLEX WITH ALPHATHROMBIN, THEREBY ABOLISHING ITS ABILITY TO CLEAVE FIBRIMOGEN THROMBIN, THEREBY ABOLISHING ITS ABILITY TO CLEAVE TIBRIMOGEN OF PURCHARACTERISACCHARIDE
                                                                                                                                                                                                                                                                                                                                               ProDom; PD004216;
Serine protease in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE, AND STRUCTURE OF CARBOHYDRATE MEDLINE-92172851; PubMed-1540584;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Annelida; Cli
Arynchobdellida; Hirudiniformes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _HIRMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                        PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ++
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=6419;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hirudinaria manillensis (Buffalo leech).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00713; Hirudin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSSP; P01050; 5HIR.
InterPro; IPR000429; Hirudin.
                                                                                                                                                                                                                                                                                            DISULFID
                                                                                                                                                                                                                                                                                                                    Multigene
                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                        Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 LTYTDCTESGQNLCLCEGSNVCGQGNKCILGSDGEKNQCVTGEGTPKPQSHNDGDFEEIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIMILARITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEXIK 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EEYLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VSYTDCTESGQNYCLCVGSNVCGEGKNCQLSSSG--NQCVHGEGTPKPKSQTEGDFEEIP
  Similarity
39; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                        PR00777; HIRUDIN.
                                                                                                                                                                                                                                                                                                                    family.
                                                                                                                       63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Rel.
(Rel.
(Rel.
     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                               61
                                                                                                                                                                                                        16
22
43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ΑA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         THEREBY ABOLISHING ITS ABILITY TO CLEAVE FIBRINOGEN. Y: BELONGS TO THE HIRUDIN FAMILY.
                                                                                                                    Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                               5; Hirudin; inhibitor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 inhibitor; Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hirudin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24, Created)
24, Last sequence update)
                                                                                                                 61
6977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6699
                                                                                                                                                                                                     14
28
37
43
                             58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            67.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Last annotation
                          98
                                                                                                                    ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₹,
                                                                                                                                                                                                                                                                                                                                         1.
Sulfation;
                                                                                                           BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
O-LINKED (GALNAC...).
/FTId=CAR_000143.
SULFATION (BY SIMILARITY.
149A7369CC75A192 CRC64;
7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
Score
Pred.
7; Mis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
8BC2828B85C51BED CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 249; DB 1;
Pred. No. 1.7e-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Clitellata; Hirudinida; Hirudinea;
es; Hirudinidae; Hirudinaria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HIRUDIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
  smatches
                       215;
No. 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 family
                                                                                                                                                                                                                                                                                                                                                  Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63
                          DB 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₿
                                                                                                                                            SIMILARITY)
  16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                        Length
  Indels
2
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1:
```

Searc Job t	Db	Qу	Db
Search completed: December 30, 2002, 16:17:00 Job time : 13 secs	59 EEYL 62	61 EEYL 64	:

	\$ \$\frac{1}{2}\$.	entry of		t i ragnam jar			· · · ×
			٠,		,		
	•						
			•				
	· ·						
							•
				`			P
	:						
					Terror Control		
٠	<i>,.</i>			s est a proper			
	No. of the second						
			er i gradina Gradina				
							\$ an
					en e		
		with the second				•	
	·						
	~		* , · · · · ·		**************************************		
					erina. Antonio al antonio al		
					4.		
	•						
	* .						
					•		
					4.* . 25. /		
				V	e e e e e e e e e e e e e e e e e e e		
					a e		
,							
			y				
				· · · · · · · · · · · · · · · · · · ·			
			* *				